

**REMARKS**

The non-Final Office Action mailed December 16, 2009 has been carefully reviewed. From the Summary page, claims 1-20 were pending. Claims 1-8 are withdrawn from consideration. Claims 9-20 are rejected. Acknowledgment has been made of Applicants' Claim for Priority. The Information Disclosure Statements filed September 2, 2006, March 27, 2007, April 24, 2009 and September 21, 2009 have been considered.

By this response, claims 9-10, 14-16 and 20 have been amended. Withdrawn claims 1-8, and claims 12 and 18 have been canceled. No statutory new matter has been added. Support for all claim amendments can be found in the original specification.

Also accompanying this response is the requisite fee for one (1) additional independent claim.

***Claim Rejections – 35 U.S.C. § 112, second paragraph***

Claims 10 and 16 stand rejected as being indefinite for allegedly failing to particularly point out distinctly claim the subject matter which Applicants regard as their invention.

The Examiner has requested clarification of the phrase “*move radially outward the substrate*”. Applicants have amended claims 10 and 16 according to the Examiner's suggestion. Accordingly, reconsideration and withdrawal the rejection as to claims 10 and 16 are requested by Applicants.

***Claim Rejections – 35 U.S.C. § 103(a)***

Claims 9-20 stand rejected as being unpatentable over Nishimura (US 6,286,525) in view of Sato (US 2002/01896541). The rejection as to claims 9-20 is respectfully traversed.

The substrate cleaning method of claim 9 and the medium for recording a program of claim 15 recite at least the following common features:

*“the cleaning position of the brush and the cleaning position of the two-fluid nozzle are moved in directions opposite to each other, and*

the cleaning position of the two-fluid nozzle is moved radially outward to a periphery of the substrate relative to the center of the substrate to areas where the brush has been in contact with the substrate”.

As illustrated in FIG. 4, according to Applicants’ methodology, the brush 3 and the two-fluid nozzle 4 move in opposite directions from the center portion Po toward a peripheral portion P1 of the substrate. The nozzle originates at a position closer to the center Po than the brush. Once the brush reaches P1, it is removed from the substrate. Thereafter, the two-fluid nozzle moves to a cleaning position Sn corresponding to position P1 (e.g., the position where the brush was in wafer contact just before separating from the wafer). Therefore, contaminants remaining on the substrate caused by the brush are removed by a jet flow from the two-fluid nozzle. This allows successive use of the same brush with reduced cleaning/changing thereof. See para. [0051].

Applicants’ substrate cleaning method of claim 10 and the medium for recording a program of claim 20 recite at least the following common features:

“...a moving speed of the cleaning position of the two-fluid nozzle relative to the substrate is/to be higher than a moving speed of the cleaning position of the brush relative to the substrate, and

a difference between a distance from the center of the substrate to the cleaning position of the brush and a distance from the center of the substrate to the cleaning position of the two-fluid nozzle becomes gradually smaller, as the cleaning position of the brush approaches a peripheral part of the substrate”

Reference again is made to FIG. 4. In this case, the nozzle has a faster moving speed than the brush. The difference between (1) the distance from the brush to the wafer center, and (2) the distance from the nozzle to the wafer center is reduced as the brush and nozzle approach the periphery P1 of the substrate. Since the nozzle reaches the periphery P1 shortly after the brush has cleaned the periphery P1, the overall cleaning time of the substrate is shortened. See para. [0047].

Nishimura fails to suggest at least the features common to claims 9/15 and 14/20 recited above. Nishimura is concerned with using a plurality of brushes which operate at variable speeds for processing different areas of the wafer. To one of ordinary skill, Nishimura does not suggest moving a two-fluid nozzle to areas of the substrate that already have been cleaned by a brush, in order to remove contaminants unintentionally deposited by the brush. Applicants' methods result in reducing the frequency of brush changing and result in faster cleaning times that are not obtained or suggested by Nishimura.

Sato does not alleviate Nishimura's deficiencies at to amended claims 9/15 and 14/20. While Sato allegedly describes a two-fluid nozzle, there is no suggestion of Applicants' recited relationships between the cleaning positions of the brush and nozzle, over the wafer. Thus, Applicants' advantages of infrequent brush changing and faster cleaning time likewise are not realized by Sato.

Kubota, which was allegedly advanced as evidence for adjusting brush speeds, also does not alleviate Nishimura's deficiencies. Kubota likewise does not recognize Applicants' starting positions, moving directions and moving speeds of the nozzle and brush so that the nozzle can remove unintentional contaminants deposited by the brush.

For at least these reasons, the combination of Nishimura, Sato and Kubota, alone or in combination, fails to suggest Applicants' claim methodologies as whole. As such, the obviousness rejection must fail.

Withdrawal of the rejection is kindly requested by Applicants.

**CONCLUSION**

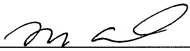
All of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Therefore, it is respectfully requested that the Examiner reconsider all presently outstanding rejections and that they be withdrawn. It is believed that a full and complete response has been made to the outstanding Office Action and, as such, the present application is in condition for allowance.

If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

If any fees under 37 C. F. R. §§ 1.16 or 1.17 are due in connection with this filing, please charge the fees to **Deposit Account No. 02-4300, Attorney Docket No. 033082M353**.

Respectfully submitted,  
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